

Cancel Per
P. # 8

Sequence Listing

<110> CENTRE NATIONAL D'ETUDES VETERINAIRES ET ALIMENTAIRES - CNEVA

<120> GENOMIC AND POLYPEPTIDE CIRCOVIRUS SEQUENCE
ASSOCIATED WITH PIGLET WEIGHT LOSS DISEASE (PWD),
APPLICATIONS TO DIAGNOSIS AND TO THE PREVENTION
AND/OR TO THE TREATMENT OF THE INFECTION

<130> D17221

<140>

<141>

<150> FR 97 15396

<151> 1997-12-05

<160> 20

<170> PatentIn Vers. 2.0

<210> 1

<211> 1759

<212> Genomic DNA

<213> Type A PWD circovirus

<220>

<223> + Polarity strand (5'-3')

<400> 1

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<210> 2
<211> 1759
<212> Genomic DNA
<213> Type A PWD circovirus
<220>
<223> Polarity strand - (5'-3')

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<210> 3
<211> 939
<212> DNA
<213> Type A PWD circovirus
<220> ORF1

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gtttgtggcg aggaagggtt ggaagagggt agaactcctc acctccagg gtttgcaat 180
tttgctaaga agcagacttt taacaagggt aagtgttatt ttgggtgccg ctgccacatc 240
gagaaagcga aaggaaccga ccagcagaat aaagaatact gcagtaaaga aggccacata 300
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agtacccttt tggagacggg gtcttttggtg actgtagccg agcagtttcc tgtaacgtat 420
gtgagaaatt tccgcgggct ggctgaactt ttgaaagtga gcgggaagat gcagcagcgt 480
gattggaaga cagctgtaca cgtcatagtg ggcccgccc gttgtgggaa gagccagtgg 540

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gcccgtaatt ttgctgagcc tagggacacc tactggaagc ctagtagaaa taagtgggtgg 600
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gttccttttt tggcccgcag tatttttgatt accagcaatc agggcccccga ggaatggtac 780
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ccaccctgtg cccttttccc atataaaata aattactga 939

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<210> 4
 <211> 702
 <212> DNA
 <213> Type A PWD circovirus
 <220> ORF2

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cgccgaaaga cgggtatctt caattcccgc ctttctagag aatttgtact caccataaga 180
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ccctatatta actactcctc ccgccacacc ataaggcagc cctttaccta ccactccagg 480
tacttcaccc ccaaaccaga gctagaccaa acaattgatt ggttccagcc aaataataaa 540
agaaaccagc tgtggctcca tttaaatacc cacaccaatg tcgagcacac aggcctgggc 600
tatgcgctcc aaaatgcaac cacagcccaa aattatgtgg taagggttgac tatttatgta 660
caattcagag aatttatcct gaaagaccct ctaaataaat aa 702

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<210> 5
 <211> 621
 <212> GENOMIC DNA
 <213> Type A PWD circovirus
 <220> ORF3

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tgtcttccaa tcacgctgct gcactctccc gctcactttc aaaagttcag ccagcccgcg 180
gaaatttctc acatacgtta caggaaactg ctcggttaca gtcaccaaag acccgtctc 240
caaaagggta ctcacagcag tagacaggtc gctgcgcttc cctgggttcc gcggagctcc 300
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ctcgccacaa acaaaataat caaaaaggga gattggaagc tcccgtattt tgtttttctc 540
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<210> 6
 <211> 312
 <212> PRT
 <213> Type A PWD circovirus

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<400> 6
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Thr Leu Asn Asn Pro Ser Glu Glu Glu Lys Asn Lys Ile Arg Glu Leu
          20           25           30

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Pro	Ile	Ser	Leu	Phe	Asp	Tyr	Phe	Val	Cys	Gly	Glu	Glu	Gly	Leu	Glu
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Glu	Gly	Arg	Thr	Pro	His	Leu	Gln	Gly	Phe	Ala	Asn	Phe	Ala	Lys	Lys
	50					55					60				
Gln	Thr	Phe	Asn	Lys	Val	Lys	Trp	Tyr	Phe	Gly	Ala	Arg	Cys	His	Ile
65					70					75					80
Glu	Lys	Ala	Lys	Gly	Thr	Asp	Gln	Gln	Asn	Lys	Glu	Tyr	Cys	Ser	Lys
				85					90					95	
Glu	Gly	His	Ile	Leu	Ile	Glu	Cys	Gly	Ala	Pro	Arg	Asn	Gln	Gly	Lys
			100					105					110		
Arg	Ser	Asp	Leu	Ser	Thr	Ala	Val	Ser	Thr	Leu	Leu	Glu	Thr	Gly	Ser
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Leu	Val	Thr	Val	Ala	Glu	Gln	Phe	Pro	Val	Thr	Tyr	Val	Arg	Asn	Phe
	130					135					140				
Arg	Gly	Leu	Ala	Glu	Leu	Leu	Lys	Val	Ser	Gly	Lys	Met	Gln	Gln	Arg
145					150					155					160
Asp	Trp	Lys	Thr	Ala	Val	His	Val	Ile	Val	Gly	Pro	Pro	Gly	Cys	Gly
				165					170					175	
Lys	Ser	Gln	Trp	Ala	Arg	Asn	Phe	Ala	Glu	Pro	Arg	Asp	Thr	Tyr	Trp
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	210					215					220				
Arg	Leu	Cys	Asp	Arg	Tyr	Pro	Leu	Thr	Val	Glu	Thr	Lys	Gly	Gly	Thr
225					230					235					240
Val	Pro	Phe	Leu	Ala	Arg	Ser	Ile	Leu	Ile	Thr	Ser	Asn	Gln	Ala	Pro
				245					250					255	
Gln	Glu	Trp	Tyr	Ser	Ser	Thr	Ala	Val	Pro	Ala	Val	Glu	Ala	Leu	Tyr
			260					265					270		
Arg	Arg	Ile	Thr	Thr	Leu	Gln	Phe	Trp	Lys	Thr	Ala	Gly	Glu	Gln	Ser
		275					280					285			
Thr	Glu	Val	Pro	Glu	Gly	Arg	Phe	Glu	Ala	Val	Asp	Pro	Pro	Cys	Ala
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Leu	Phe	Pro	Tyr	Lys	Ile	Asn	Tyr								
305					310										

<210> 7
 <211> 233
 <212> PRT

<213> Type A PWD circovirus

<400> 7

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Ala	Phe	Arg	Asn	Arg	Tyr	Arg	Trp	Arg	Arg	Lys	Thr	Gly	Ile	Phe	Asn
		35					40					45			
Ser	Arg	Leu	Ser	Arg	Glu	Phe	Val	Leu	Thr	Ile	Arg	Gly	Gly	His	Ser
	50					55					60				
Gln	Pro	Ser	Trp	Asn	Val	Asn	Glu	Leu	Arg	Phe	Asn	Ile	Gly	Gln	Phe
65					70					75					80
Leu	Pro	Pro	Ser	Gly	Gly	Thr	Asn	Pro	Leu	Pro	Leu	Pro	Phe	Gln	Tyr
				85					90					95	
Tyr	Arg	Ile	Arg	Lys	Ala	Lys	Tyr	Glu	Phe	Tyr	Pro	Arg	Asp	Pro	Ile
			100					105					110		
Thr	Ser	Asn	Gln	Arg	Gly	Val	Gly	Ser	Thr	Val	Val	Ile	Leu	Asp	Ala
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Tyr	Phe	Thr	Pro	Lys	Pro	Glu	Leu	Asp	Gln	Thr	Ile	Asp	Trp	Phe	Gln
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Pro	Asn	Asn	Lys	Arg	Asn	Gln	Leu	Trp	Leu	His	Leu	Asn	Thr	His	Thr
			180					185					190		
Asn	Val	Glu	His	Thr	Gly	Leu	Gly	Tyr	Ala	Leu	Gln	Asn	Ala	Thr	Thr
		195					200					205			
Ala	Gln	Asn	Tyr	Val	Val	Arg	Leu	Thr	Ile	Tyr	Val	Gln	Phe	Arg	Glu
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Phe	Ile	Leu	Lys	Asp	Pro	Leu	Asn	Glu							
225					230										

<210> 8

<211> 206

<212> PRT

<213> Type A PWD circovirus

<400> 8

Met	Ile	Ser	Ile	Pro	Pro	Leu	Ile	Ser	Thr	Arg	Leu	Pro	Val	Gly	Val
1				5					10					15	

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20 25 30
Arg Ala His Tyr Asp Val Tyr Ser Cys Leu Pro Ile Thr Leu Leu His
35 40 45
Leu Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser His
50 55 60
Ile Arg Tyr Arg Lys Leu Leu Gly Tyr Ser His Gln Arg Pro Arg Leu
65 70 75 80
Gln Lys Gly Thr His Ser Ser Arg Gln Val Ala Ala Leu Pro Leu Val
85 90 95
Pro Arg Ser Ser Thr Leu Asp Lys Tyr Val Ala Phe Phe Thr Ala Val
100 105 110
Phe Phe Ile Leu Leu Val Gly Ser Phe Arg Phe Leu Asp Val Ala Ala
115 120 125
Gly Thr Lys Ile Pro Leu His Leu Val Lys Ser Leu Leu Leu Ser Lys
130 135 140
Ile Arg Lys Pro Leu Glu Val Arg Ser Ser Thr Leu Phe Gln Thr Phe
145 150 155 160
Leu Ala Thr Asn Lys Ile Ile Lys Lys Gly Asp Trp Lys Leu Pro Tyr
165 170 175
Phe Val Phe Leu Leu Leu Gly Arg Ile Ile Lys Gly Glu His Pro Pro
180 185 190
Leu Met Gly Leu Arg Ala Ala Phe Leu Ala Trp His Phe His
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<210> 9

<211> 1767

<212> Genomic DNA

<213> Type B PWD circovirus

<220> Polarity strand + (5'-3')

<400> 9

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ccagcggtaa	cggtggcggg	ggtggacgag	ccaggggcgg	cggcggagga	tctggccaag	1680
atggctgcgg	gggcgggtgc	ttcttcttcg	gtaacgcctc	cttggatacg	tcataatctga	1740
aaacgaaaga	agtgcgctgt	aagtatt				1767

<210> 10
 <211> 1767
 <212> GENOMIC DNA
 <213> Type B PWD circovirus

<220> Polarity strand - (5'-3')

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gtccaccccc	gccaccgtta	ccgctggaga	aggaaaaatg	gcactcttcaa	caccgcctc	180
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tctgtgccct	ttgaatacta	cagaataaga	aagggttaagg	ttgaattctg	gccctgctcc	360
ccgatcaccc	agggtgacag	gggagtgggc	tccagtgtcg	ttatttttaga	tgataacttt	420
gtaacaaagg	ccacagccct	cacctatgac	ccctatgtaa	actactcctc	ccgccatacc	480
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actattgatt	acttccaacc	aaacaacaaa	agaaaccagc	tgtggctgag	actacaaact	600
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caaccacttc	ttcaccatgg	taaccatccc	accacttggt	tctaggtggg	ttccagtatg	1140
tgggtttccgg	gtctgcaaaa	ttagcagccc	atttgctttt	accacaccca	gggtggcccca	1200
caatgacgtg	tacattagtc	ttccaatcac	gcttctgcat	tttcccgcctc	actttcaaaa	1260
gttcagccag	cccgcggaaa	tttctgacaa	acgttacagg	gtgctgctct	gcaacgggtca	1320
ccagactccc	gctctccaac	aagggtactca	cagcagtaga	caggtcactc	cgttgtccct	1380
gagatctagg	agctccacac	tccatcagta	agttgccttc	tttactgcag	tattctttat	1440
tctgctgatc	tgttcctttc	gctttctcga	tgtggcagcg	ggcacccaaa	taccacttca	1500
ctttattaaa	agtctgcttc	ttcacaaaat	tagcgaaccc	ctggaggtga	ggtgttcgtc	1560
cttctcatt	acctcctcgc	ccaacaataa	aataatcaaa	tagggatatt	ggaagatccc	1620
gtatttttctt	gcgctcgtct	tcggaaggat	tattcagagt	gaacacccac	cttttatggg	1680
gttgggggtcc	gcttcttcca	ttcttcttgc	tgggcatggt	gctgctgagg	tgctgccgag	1740
gtgctgccgc	tgccgaagtg	cgctggt				1767

<210> 11
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<212> DNA
<213> Type B PWD circovirus

<220> ORF1

<400> 11
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ctgaataatc cttccgaaga cgagcgcaag aaaatacggg atcttccaat atccctatatt 120
gattatttta ttgttggcga ggagggtaat gaggaaggac gaacacctca cctccagggg 180
ttcgctaatt ttgtgaagaa gcagactttt aataaagtga agtggtatatt ggggtgccgc 240
tgccacatcg agaaagcgaa aggaacagat cagcagaata aagaatactg cagtaaagaa 300
ggcaacttac tgatggagtg tggagctcct agatctcagg gacaacggag tgacctgtct 360
actgctgtga gtaccttgtt ggagagcggg agtctgggtg ccggtgcaga gcagcaccct 420
gtaacgtttg tcagaaattt ccgcgggctg gctgaacttt tgaaagttag cgggaaaatg 480
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agcaaattgg ctgctaattt tgcagacccg gaaaccacat actggaaacc acctagaaac 600
aagtgggtgg atggttacca tgggtgaagaa gtggttggta ttgatgactt ttatggctgg 660
ctgccctggg atgatctact gagactgtgt gatcgatac cattgactgt agagactaaa 720
ggtggaactg tacctttttt ggcccgcagt attctgatta ccagcaatca gaccccggtg 780
gaatggtagt cctcaactgc tgtcccagct gtagaagctc tttatcggag gattacttcc 840
ttgggtatttt ggaagaatgc tacagaacaa tccacggagg aagggggcca gttcgtcacc 900
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<210> 12
<211> 702
<212> DNA
<213> Type B PWD circovirus

<220> ORF2

<400> 12
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cagatcctcc gccgccgccc ctggctcgte caccgccgcc accgttaccg ctggagaagg 120
aaaaatggca tcttcaacac ccgcctctcc cgcaccttcg gatatactgt caagcgaacc 180
acagtcagaa cgcctcctg ggccggtggac atgatgagat tcaatattaa tgactttctt 240
ccccaggag gggggtcaaa cccccgctct gtgccctttg aatactacag aataagaaag 300
gttaagggtg aattctggcc ctgctccccg atcaccagg gtgacagggg agtgggctcc 360
agtgtgttta ttttagatga taactttgta acaaaggcca cagccctcac ctatgacccc 420
tatgtaaact actcctcccg ccataccata acccagcccc tctcctacca ctcccggtag 480
tttaccacca aacctgtcct agatttcact attgattact tccaaccaa caacaaaaga 540
aaccagctgt ggctgagact acaaactgct ggaaatgtag accacgtagg cctcggcact 600
gcgttcgaaa acagtatata cgaccaggaa tacaatatcc gtgtaaccat gtatgtacaa 660
ttcagagaat ttaattttta agacccccca cttaccctt aa 702

<210> 13
<211> 315
<212> DNA
<213> Type B PWD circovirus

<220> ORF3

<400> 13
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agtcttccaa tcacgcttct gcattttccc gctcactttc aaaagttcag ccagcccgcg 180
gaaatttctg acaaacgtta cagggtgctg ctctgcaacg gtcaccagac tcccgtcttc 240
caacaaggta ctacagcag tagacaggtc actccgttgc ccctgagatc taggagctcc 300
acactccatc agtaa 315

<210> 14
 <211> 314
 <212> PRT
 <213> Type B PWD circovirus

<400> 14
 Met Pro Ser Lys Lys Asn Gly Arg Ser Gly Pro Gln Pro His Lys Arg
 1 5 10 15
 Trp Val Phe Thr Leu Asn Asn Pro Ser Glu Asp Glu Arg Lys Lys Ile
 20 25 30
 Arg Asp Leu Pro Ile Ser Leu Phe Asp Tyr Phe Ile Val Gly Glu Glu
 35 40 45
 Gly Asn Glu Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe
 50 55 60
 Val Lys Lys Gln Thr Phe Asn Lys Val Lys Trp Tyr Leu Gly Ala Arg
 65 70 75 80
 Cys His Ile Glu Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr
 85 90 95
 Cys Ser Lys Glu Gly Asn Leu Leu Met Glu Cys Gly Ala Pro Arg Ser
 100 105 110
 Gln Gly Gln Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu
 115 120 125
 Ser Gly Ser Leu Val Thr Val Ala Glu Gln His Pro Val Thr Phe Val
 130 135 140
 Arg Asn Phe Arg Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met
 145 150 155 160
 Gln Lys Arg Asp Trp Lys Thr Asn Val His Val Ile Val Gly Pro Pro
 165 170 175
 Gly Cys Gly Lys Ser Lys Trp Ala Ala Asn Phe Ala Asp Pro Glu Thr
 180 185 190
 Thr Tyr Trp Lys Pro Pro Arg Asn Lys Trp Trp Asp Gly Tyr His Gly
 195 200 205
 Glu Glu Val Val Val Ile Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp
 210 215 220
 Asp Leu Leu Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys
 225 230 235 240
 Gly Gly Thr Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn
 245 250 255
 Gln Thr Pro Leu Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu
 260 265 270
 Ala Leu Tyr Arg Arg Ile Thr Ser Leu Val Phe Trp Lys Asn Ala Thr

275	280	285
Glu Gln Ser Thr Glu Glu Gly Gly Gln Phe Val Thr Leu Ser Pro Pro		
290	295	300
Cys Pro Glu Phe Pro Tyr Glu Ile Asn Tyr		
305	310	
<210> 15		
<211> 233		
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<213> Type B PWD circovirus		
<400> 15		
Met Thr Tyr Pro Arg Arg Arg Tyr Arg Arg Arg Arg His Arg Pro Arg		
1	5	10
Ser His Leu Gly Gln Ile Leu Arg Arg Arg Arg Trp Leu Val His Pro		
20	25	30
Arg His Arg Tyr Arg Trp Arg Arg Lys Asn Gly Ile Phe Asn Thr Arg		
35	40	45
Leu Ser Arg Thr Phe Gly Tyr Thr Val Lys Arg Thr Thr Val Arg Thr		
50	55	60
Pro Ser Trp Ala Val Asp Met Met Arg Phe Asn Ile Asn Asp Phe Leu		
65	70	75
Pro Pro Gly Gly Gly Ser Asn Pro Arg Ser Val Pro Phe Glu Tyr Tyr		
85	90	95
Arg Ile Arg Lys Val Lys Val Glu Phe Trp Pro Cys Ser Pro Ile Thr		
100	105	110
Gln Gly Asp Arg Gly Val Gly Ser Ser Ala Val Ile Leu Asp Asp Asn		
115	120	125
Phe Val Thr Lys Ala Thr Ala Leu Thr Tyr Asp Pro Tyr Val Asn Tyr		
130	135	140
Ser Ser Arg His Thr Ile Thr Gln Pro Phe Ser Tyr His Ser Arg Tyr		
145	150	155
Phe Thr Pro Lys Pro Val Leu Asp Phe Thr Ile Asp Tyr Phe Gln Pro		
165	170	175
Asn Asn Lys Arg Asn Gln Leu Trp Leu Arg Leu Gln Thr Ala Gly Asn		
180	185	190
Val Asp His Val Gly Leu Gly Thr Ala Phe Glu Asn Ser Ile Tyr Asp		
195	200	205
Gln Glu Tyr Asn Ile Arg Val Thr Met Tyr Val Gln Phe Arg Glu Phe		
210	215	220
Asn Phe Lys Asp Pro Pro Leu Asn Pro		

225

230

<210> 16
<211> 104
<212> PRT
<213> Type B PWD circovirus

<400> 16
Met Val Thr Ile Pro Pro Leu Val Ser Arg Trp Phe Pro Val Cys Gly
1 5 10 15
Phe Arg Val Cys Lys Ile Ser Ser Pro Phe Ala Phe Thr Thr Pro Arg
20 25 30
Trp Pro His Asn Asp Val Tyr Ile Ser Leu Pro Ile Thr Leu Leu His
35 40 45
Phe Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser Asp
50 55 60
Lys Arg Tyr Arg Val Leu Leu Cys Asn Gly His Gln Thr Pro Ala Leu
65 70 75 80
Gln Gln Gly Thr His Ser Ser Arg Gln Val Thr Pro Leu Ser Leu Arg
85 90 95
Ser Arg Ser Ser Thr Leu His Gln
100

<210> 17
<211> 15
<212> PRT
<213> Type B PWD circovirus

<400> 17
Val Asp Met Met Arg Phe Asn Ile Asn Asp Phe Leu Pro Pro Gly
1 5 10 15

<210> 18
<211> 15
<212> PRT
<213> Type B PWD circovirus

<400> 18
Gln Gly Asp Arg Gly Val Gly Ser Ser Ala Val Ile Leu Asp Asp
1 5 10 15

<210> 19
<211> 15
<212> PRT
<213> Type B PWD circovirus

<400> 19
Gly Val Gly Ser Ser Ala Val Ile Leu Asp Asp Asn Phe Val Thr
1 5 10 15

<210> 20
<211> 15
<212> PRT
<213> Type B PWD circovirus

<400> 20
Val Asp His Val Gly Leu Gly Thr Ala Phe Glu Asn Ser Ile Tyr
1 5 10 15

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